IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of

Schelberger et al

Serial No. 09/868,515

Filed: December 11, 1999 as PCT international application

For: FUNGICIDAL MIXTURES BASED ON MORPHOLINE OR PIPERIDINE DERIVATIVES AND OXIME ETHER DERIVATIVES

DECLARATION

I, Eberhard Ammermann, a doctor of natural sciences, a citizen of the Federal Republic of Germany and residing at 2, von-Gagern-Straße, 64646 Heppenheim, Germany, declare as follows:

I am a fully trained chemist, having studied chemistry at the University of Bonn, Germany, from 1965 to 1974;

I was awarded my doctor's degree by the said University in 1974; I worked as an assistant at the said University from 1971 to 1975;

I joined BASF Aktiengesellschaft of 67056 Ludwigshafen, Germany, in 1975, and have since then been working in the field of fungicides, synthesizing fungicides and testing substances for their fungicidal activity, and am therefore fully conversant with the fungicidal art;

I am one of the inventors of the invention disclosed and claimed in Application Serial No. 09/868,515 and therefore I am familiar with the field to which it belongs. In order to provide further support for the synergistic effect of the mixtures disclosed and claimed in Application Ser. No. 09/868,515 I have conceived the tests described below, which were carried out under my supervision.

The following compounds and compositions containing them were tested:

1. Morpholine and piperidine derivatives

Ia

Ib

Ic [n=10,11,12 (60-70%) or 13]

2. Oxime ether

IIa
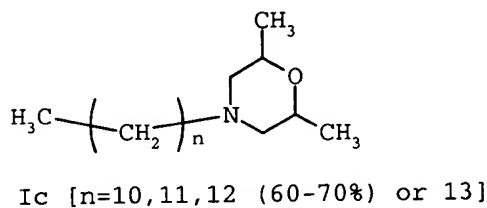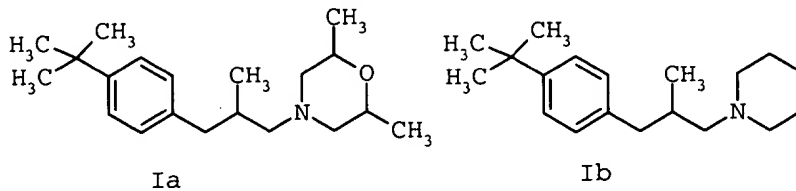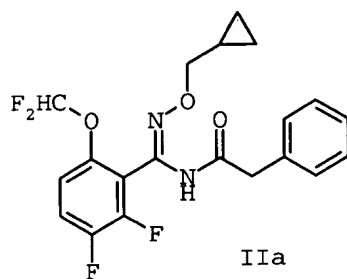
The biological activity of the compounds and compositions containing them were tested as follows:

Action on *Erysiphe graminis* forma specialis *tritici* (wheat mildew)

Leaves of potted wheat seedlings of the " Kanzler" variety were sprayed to runoff with an aqueous preparation of active compound which was prepared from a stock solution comprising of 10% of active ingredient, 63% of cyclohexanone, and 27% of emulsifier and, 24 hours after the sprays-on layer had dried, the plants were dusted with spores of wheat mildew (*Erysiphe graminis* forma specialis *tritici*). The plants were then set up in the greenhouse at from 20 to 24°C and a relative humidity of from 60 to 90%. After 7 days the extent of mildew spread was assessed as %-attack of the whole leaf surface.

The leaf area under fungus attack was then visually assessed in percent. These figures were then converted into degrees of control. The degree of control in the untreated plants was set at 0. The degree of control when 0% of the leaf area was attacked was set at 100.

The degree of control (**W**) was calculated in accordance with the Abbott formula as follows:

Abbott formula: $W = (1 - \alpha/\beta) \cdot 100$

α fungus attack of treated plants [%] and

β fungus attack of untreated control plants [%]

The expected degrees of action of the active ingredient compositions were determined in accordance with the Colby formula (Colby, S. R. "Calculating synergistic and antagonistic responses of herbicide Combinations", Weeds, 15, p. 20 - 22, 1967) and compared with the degrees of action observed.

The values for the fungicidal action varied between the individual experiments because the plants in the individual experiments exhibited varying degrees of attack; for this reason, only the results within the same experiment can be compared with each other.

Colby formula: $E = x + y - (x \cdot y : 100)$

E =   Expected degree of action, expressed in % of the untreated control, when active ingedients A and B are applied together, the concentration of A being [a] and the concentration of B being [b]

x =   degree of action of ingredient A, expressed in % of the untreated control, when concentration [a] of the active ingredient A is applied

y =   degree of action of ingredient B, expressed in % of the untreated control, when concentration [b] of the active ingredient B is applied

As a general rule the comparison of the expected degree of action ("E" according to the Colby formula) with the degree of action found shows whether the effect is synergistic or not, the correlation being as follows:

degree of action found > "E" $\Rightarrow$ synergism

degree of action found < "E" $\Rightarrow$ no synergism

The test results are listed in the following tables:

Compound	Appln. Rate [ppm]	degree of control [%]
control (untreated)	(67 % attack)	0
Ia	0.25	55
Ib	0.25	55
Ic	1	0
IIa	0.06	65

The same experiments were carried out with mixtures in accordance with the instant invention. The results achieved with these compositions are listed in the following table:

Mixture according to the invention Application rate [ppm]	Degree of action observed	Degree of action calculat d (Colby)
Ia + IIa 0.25 + 0.06 ppm ratio 4 : 1	100	84
Ib + IIa 0.25 + 0.06 ppm ratio 4 : 1	96	84
Ic + IIa 1 + 0.06 ppm ratio 16 : 1	96	65

These test results clearly demonstrate that compositions comprising compounds Ia, Ib, Ic, and IIa exhibit synergism at different application rates.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information or belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed at 67056 Ludwigshafen, Germany, this 2. day of November, 2001.

Eberhard Zimmermann

Signature of Declarant